



Department of Energy

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SEP 06 2000

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V, SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0972-00

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF RESPONSES TO OEPA COMMENTS ON THE PROJECT SPECIFIC PLAN
FOR PUMPING TEST, PILOT PLANT DRAINAGE DITCH AREA (AUGUST 2000)**

Reference: Letter, T. Schneider to J. Reising, "Comments PSP for Pilot Plant Drainage
Ditch Pump Test," dated August 10, 2000

This letter transmits the subject responses for your review. The comments were received via
the referenced letter.

Should you have any questions regarding this submittal, please contact Robert Janke
at (513) 648-3124.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:R.J. Janke

Enclosure

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Mr. James A. Saric
Mr. Tom Schneider

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SEP 06 2000

cc w/enclosure:

N. Hallein, EM-31/CLOV
G. Jablonowski, USEPA-V, SRF-5J
T. Schneider, OEPA-Dayton (three copies of enclosure)
F. Bell, ATSDR
F. Hodge, Tetra Tech
M. Schupe, HSI GeoTrans
R. Vandegrift, ODH
D. Carr, Fluor Fernald, Inc./2
T. Hagen, Fluor Fernald, Inc./65-2
J. Harmon, Fluor Fernald, Inc./90
W. Hertel, Fluor Fernald, Inc./52-5
AR Coordinator, Fluor Fernald, Inc./78

cc w/o enclosure:

J. D. Chiou, Fluor Fernald, Inc./52-0
S. Hinnefeld, Fluor Fernald, Inc./90
M. Jewett, Fluor Fernald, Inc./52-2
T. Walsh, Fluor Fernald, Inc./65-2
ECDC, Fluor Fernald, Inc./52-7

**RESPONSES TO OEPA COMMENTS ON THE
PROJECT SPECIFIC PLAN FOR PUMPING TEST IN
THE PILOT PLANT DRAINAGE DITCH PLUME AREA**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

AUGUST 2000

U.S. DEPARTMENT OF ENERGY

**RESPONSES TO OEPA COMMENTS ON THE
PROJECT SPECIFIC PLAN FOR PUMPING TEST IN
THE PILOT PLANT DRAINAGE DITCH PLUME AREA**

Response to Future Actions presented in the main body of Ohio EPA's letter.

As Ohio EPA states in their letter, changes to the PSP will be accomplished through written variances. These written variances will be submitted to the Ohio EPA for review and approval. However, variances are sometimes written to address real-time situations that occur in the field. It is not practical or cost-effective to delay work in the field pending Ohio EPA approval. In some instances DOE will need to proceed with work in accordance with a variance under the assumption that Ohio EPA will concur with the change noted in the variance once they have had the opportunity to review the variance. DOE will make a good faith effort though to discuss changes with the Ohio EPA before they are implemented.

A decision to postpone or cancel the CRT would be based on the following criteria, which are presented in order of importance and the use of existing plans (i.e., OMMP) as presented below.

- 1) Safety of the Test Personnel
- 2) Protection of the Environment
- 3) Equipment Breakdown
- 4) Expected Quality of the Data

The safety of the test personnel is the number one concern of DOE. If a safety issue should arise such that the safety of test personnel is or could be compromised, and the situation cannot be corrected without stopping or postponing the CRT, then the CRT will be postponed or stopped. Possible test stopping events include severe storms, lightning, high wind, and radon inversions, etc. It is anticipated that minor safety issues that might arise can be addressed without stopping or postponing the CRT.

Protection of the environment during the CRT involves the management of pumped groundwater. The pumped groundwater will be contaminated with uranium at concentrations above 20 µg/L. Failure to be able to manage the pumped water as described in the Pumping Test PSP for the Pilot Plant Drainage Ditch Plume Area would result in postponing or stopping the CRT. To reduce the chance that management of the water will interfere with conducting the test, prior to the start of the CRT the Storm Water Retention Basin system will be pumped down to a low level. No Storm Water Treatment System will be scheduled for maintenance during the CRT. The Storm Water Retention Basin system will be managed during the CRT per the OMMP.

A major equipment breakdown would result in the CRT being postponed or stopped. The chance of this happening though is unlikely because steps are being taken to minimize such an occurrence. If the pump or generator should fail, then the test would need to be stopped or postponed. Most of the other equipment and instruments being used will have backups in case of failure. As in past CRTs conducted at Fernald, the probability of an equipment breakdown is also being minimized by conducting an equipment shakedown prior to the start of the CRT to make sure that the equipment is working as intended.

Many steps are being taken to collect useful water level data from the test. It is not imperative to the success of the test that water level data be collected under ideal conditions. What is imperative is that the data collected are corrected for possible non pump-test related interference prior to being used. This is standard practice for a pumping test. For this reason background wells, the effects of Paddys Run, temperature, atmospheric pressure, precipitation, and the influence of other pumping wells in the area around the test site are being monitored. It is possible that during the CRT it could be judged that one of these influences is too much to compensate for and the test will need to be stopped. This will be a judgement call based on the available data collected at the time. But in most cases it is anticipated that the data can be corrected prior to use; therefore, the chance that the test will need to be stopped because of one of these non-pumping related effects is very low.

1. **Commenting Organization:** Ohio EPA

Section #: Pg #: Line #: Code: general

Response: This comment raises the following several points that DOE would like to address:

- These points are addressed as follows:**

- DOE was fast tracking this project based on the results of the pre-design characterization efforts. The characterization identified a uranium plume in the vicinity of the pilot plant drainage ditch that was more extensive than previously characterized. The characterization also indicated that the required design of the groundwater restoration module in the waste storage area would vary significantly from that established in the 1997 Baseline Remedial

Strategy Report. The results of the characterization efforts were discussed during the weekly conference calls with US EPA and OEPA as they became available.

The report summarizing the results of the characterization, "Conceptual Design For Remediation of the Great Miami Aquifer in The Waste Storage and Plant 6 Areas" was sent to US EPA and Ohio EPA on June 30. The Conceptual Design Report was provided in preparation for discussions to be held at a meeting scheduled for July 11 with Ohio EPA and US EPA. At the July 11 meeting the Conceptual Design Report was summarized with particular emphasis placed on the conclusions and recommendations. A key recommendation was the performance of the pumping test to support the preliminary design, due to EPA on June 15, 2001.

Technical details of the pumping test were presented and discussed at the July 11 meeting, along with the need to begin drilling the test wells as soon as possible. On July 27, site natural resource personnel were scheduled to visit, with the drilling contractor, the area where the drilling was to occur. The purpose of this walkthrough was to evaluate and minimize, to the degree possible, the impact of the pump test well installation on the forested area in which the well installation was to occur. OEPA attended this walkthrough and became distraught when the drilling contractor stated he would prefer to clear the area with a dozer prior to drilling (rather than selectively cut trees). In subsequent phone conversations later on the afternoon of July 27, OEPA first requested that the PSP for the pump test be provided for review. The pump test PSP, which was undergoing internal review at the time of Ohio EPA's initial request, was provided on August 3, one week after the initial request.

Based on the above, DOE does not agree that there has been a lack of planning and coordination regarding this project.

- 2) OEPA conceptually agreed with the pumping test but expected that the details would be refined in a plan.

To avoid misunderstandings such as this in the future, DOE recommends that concurrence be reached on what plans are to be submitted for review and approval.

- 3) OEPA feels that site preparation planning should not be conducted without an EPA approved Project Specific Plan (PSP).

The PSP was provided to the EPA prior to the start of work. Site preparation planning must be performed as part of the PSP preparation so that the PSP will have sufficient information such that Ohio EPA can approve the plan. DOE does, however, agree that OEPA should be involved in site preparation planning, especially when that planning indicates that site preparation will involve removal of trees or alteration of other natural resources.

- 4) OEPA feels that the Pump Test PSP was provided only after vigorous and contentious discussions.

As noted above, the PSP was provided within 1 week of the initial request by OEPA. DOE is not aware of any vigorous and contentious discussions regarding the provision of the pump test PSP. DOE does agree that it would be beneficial to have additional discussion with Ohio EPA regarding what plans are expected for review.

- 5) At the site walk down on 8/8, Ohio EPA's comments resulted in moving 2 wells. Movement of the 2 wells resulted in significantly minimized ecological impacts and improved the expected pump test data.

- 6) Contamination characterization/remediation plans must be provided to EPA/OEPA for review and approval prior to implementation.

The PSP was provided to the EPA prior to the initiation of any site work.

2. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 2.0 Pg.#: 2-2 Line #: 22 Code: C
Comment: The responsibilities of the drilling subcontractor should also include the construction of access to each drilling location.
Response: The drilling subcontractor is responsible for preparing the drilling area, under the direction of Fluor Fernald. Fluor Fernald is responsible for the construction of access to each drilling location. Future drilling plans will make this distinction in responsibilities more clear.
Action: No revision to the PSP required.
3. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 4.3 Pg.#: 4-3 Line #: 30 Code: C
Comment: The text indicates that DOE may analyze uranium concentrations in individual sediment fractions in order to correlate uranium concentration with sediment size. DOE should commit to performing these analyses considering how critical accurate specification of the distribution coefficient (K_d) is for reliable assessment of the aquifer remediation performance and considering the previously stated plans to simulate K_d as a discretized, nonlinear parameter. DOE should also commit to analyzing the pore water from each sediment fraction for total uranium to allow for direct comparison to the sediment fraction (e.g., aquifer matrix) concentrations.
Response: DOE is collecting the sieved sediment samples from the target zone of the control well for possible later uranium analysis. Drilling of the control well for the Pilot Plant Pumping Test presents a good opportunity for obtaining the samples at little to no extra effort or cost. However, DOE is not ready to commit to performing the uranium analysis of the sieved sediment samples. The overall approach for improving the sites understanding of K_d should be further discussed and finalized before a commitment to analyze the sediments is made.

DOE does not want to commit to analyzing the pore water from each sediment fraction for total uranium so that a direct comparison to the uranium concentration of the sediment fraction can be made. Analyzing pore fluids would provide non-representative results, as drilling fluids would likely have altered pore fluid chemistry. As explained below DOE feels that other methods might yield more informative results.

When the South Field Pumping Test Wells were installed water samples were collected from the same depths that sediment samples were collected. A direct comparison of the sediment and water uranium concentrations found in the collected samples resulted in K_d estimates that varied by up to four orders of magnitude. It is believed that the wide range of K_d estimates resulting from the South Field Work was due to a limited understanding of what the natural background for uranium is in the GMA sediments and how the uranium was partitioned on or in the aquifer's individual sediment grains. A value of $1.6 \mu\text{g/g}$ was used in the study to represent background total uranium for the Great Miami Aquifer sediment. In reality there is probably a range that should be considered based on the origin of the sediments represented in the various

size fractions. Hence, DOE would like to suggest that sieved fractions could be analyzed for total uranium to get a better handle on grain size variations and background uranium.

Most important to the K_d issue is how the uranium is partitioning onto or into individual grains of aquifer sediment. This information is important for understanding how easily the uranium can be removed from the sediments. It is believed that microprobe work on select sediments might yield more useful partition information than repeating the South Field work. This discussion though is outside the scope of the pump test and should be addressed in a separate PSP that solely addresses the K_d issue.

Action: No revision to the PSP required.

4. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 4.3 Pg.#: 4-4 Line #: 27 Code: C
Comment: This plan should discuss what actions will be taken should the test drilling data obtained at the control well (Well 32761) indicate that the formation encountered is very silty and similar lithologically to the formation encountered at South Field Extraction Module Well 31566. Will the well be installed should such silty aquifer conditions be encountered? If not, is there a backup location that is under consideration?
Response: Direct push sampling conducted at Location 12708 for the Waste Storage Area Conceptual Report already indicates that the lithology in the Control Well Area should not be similar to the lithology in the area of Extraction Well 31566 in regards to the amount of clay and silt present. However, upon drilling the control well if it is discovered that the location does lie within a pocket of silty or clayey sand, then the location may need to be moved. The backup location would be the proposed location for WSA-7 as this is the next best well location at which to begin aquifer remediation in this area.
Action: No revision to the PSP required.
5. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 5.1 Pg.#: 5-2 Line #: 14 Code: C
Comment: If not standard procedure, the field procedures should include the recording of serial numbers for each transducer and the corresponding well it is installed in. Documentation of the exact transducer installed in each well will enable the ready identification of compromised data in the event of transducer failure.
Response: The recording of serial numbers for each transducer and the corresponding well in which it is installed is standard procedure, and does not need to be called out specifically in the PSP.
Action: No revision to the PSP required.
6. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 5.2 Pg.#: 5-3 Line #: 8 Code: C
Comment: Specific mention should be made that transducer/data logger response testing will be performed, both before and after data collection, to verify that accurate water level data was collected during the test.
Response: Testing the performance of transducer and data logger systems is standard practice at Fernald and does not need to be called out specifically in the PSP.
Action: No revision to the PSP required.
7. Commenting Organization: OEPA Commentor: HSI GeoTrans, Inc.
Section #: 5.3.3 Pg.#: 5-5 Line #: 31 Code: C
Comment: Clarify the length of the static monitoring period in Observation Well 32765. As the result of a typographical error, it is unclear if the period is one or two weeks in length.
Response: Readings will be collected hourly beginning a minimum of two weeks prior to the start of the step test.
Action: As stated in response.